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Bricolage as Institutional Maintenance Work: integrating new construction materials into heritage buildings

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Abstract: *Listed-buildings* refers to buildings that are protected by the state because of their recognized status as national patrimony. Many listed buildings are currently undergoing various construction works, such as renovation or extension, to preserve them while keeping intact the function for which they were originally built. Increased use of construction practices pertaining to Sustainable Development is calling for insight into the process through which these kinds of buildings can be modernized by integrating new materials, without distorting their embodied cultural heritage. More specifically, this phenomenon raises the question: how do construction actors and different stakeholders of a construction work maintain the legitimacy of listed-buildings by intertwining the « old » and the « new »? Through a Grounded-Theory Methodology, the paper investigates this topic through three selected listed buildings in Denmark: two schools, Sølvgade Skole - Denmark’s oldest primary school - and Munkegård Skole, which was built by the celebrated Danish architect Arne Jacobsen, as well as the Nyboder neighbourhood, a housing estate intended for students of the Danish Defence. The project aims to identify some key processes of bricolage, a notion developed by Lévi-Strauss (1962), notably how bricolage is used as a form of Institutional Maintenance Work. The present study analyses how actors select and combine resources they have at hand, ranging from material artefacts and economic resources to cognitive elements and political concerns, and how they translate them at a micro-organizational level in order to achieve their purpose; i.e. maintaining the institution of listed-buildings, characterized by its essential *leitmotiv* of “keeping the original above all”.

Introduction

According to Institutional Theory, the quest of legitimacy is the major aim an organization has to focus on to survive and exist in the institutional field (Tolbert & Zucker, 1983). And to acquire it, actors develop different strategies while corroborating the requirements and constraints of their environment (Oliver, 1991). By focusing more on issues of agency and how actors perceive and interpret new practices within an organization to strategically better substantiate its interests and activity (Alvarez et al., 2005; Boxenbaum, 2006), the Scandinavian Institutionalism has challenged the isomorphic diffusion and enhanced the role of actors in case of institutional change. Following that approach, an organization translates new ideas or new pressures in alignment with its own specific features and rarely intentionally undoes its existing institutional elements (Borum & Westenholz, 1995).

In a micro-level, the actions that respond to some jolt coming from the institutional field (Sine & David, 2003) and affect the institution (Rojas, 2010) can be studied by the Institutional Work literature which is defined as *“the purposive actions of the individual and organizations at creating, maintaining and disrupting institutions”* (Lawrence & Suddaby, 2006: 215). In the form of maintenance work which *“involves supporting, repairing or recreating the social mechanisms that assure compliance”*, the actor wants to ensure adherence to regulative systems or taken-for-granted practices and to reproduce existing norms and belief systems (cf. *ibid*, 2006). This work is currently the object of increasing interest from scholars. However a lot of gaps still have to be filled especially on how materials or aesthetics elements do play a role in the institutional maintenance or on the development of more integrative models of Institutional Work dynamics by conducting more comparative and qualitative field studies (Lawrence, Leca & Zilber, 2013).

Overstepping the Scott's definition of institution (2008) as the *“cognitive, normative and regulative elements that provide stability and meaning to social behaviour”*, and the vision Heclo has on institution as *“an unstructured and implicit thing”* (Heclo, 2008: 57), an artefact, i.e. an object that can be transformed and manipulated by actors, can be seen as a representative or a carrier of a more formalized institution (Blanc & Huault, 2013) that reflects and shapes it as long as the artefact infuses and represents the culture, values and

symbols of the institution (Hilpinen, 2011). Therefore, the action performed on an artefact may or may not have a consequence on the institution.

In this paper, in order to study the role material artefacts play in the maintenance of an institution, I explore the micro-dynamics of Bricolage, defining as “*making do by applying combinations of the resources at hand to new problems and opportunities*” (Baker and Nelson, 2005: 333), and underline how it can be used as an Institutional Maintenance Work. To do this, I present my results in the field of architecture through the case of listed-buildings renovations where the architect has simultaneously to rescue the authenticity of a building and to transform it into a modern installation (Diez, 2012), i.e. respect the heritage embodied in the listed building while integrating new materials or requirements.

Regarding the rapid increases in practice and regulations pertaining to Sustainable Development, the rise of green ideas is calling for insight into the process through which this kind of building, with a recognized patrimony protected by the State within the Listed-Building institution, undergoes building works and integration of new materials. This process is very important because its legitimacy as a listed-building and its survival, i.e. the possibility of keeping the function for which the building was built, depend on its upgrading and on how architects intertwine the “old” and the “new”, i.e. respect its Heritage side and implement green requirements.

So the research questions guiding this paper are: in order to achieve legitimacy (Meyer & Rowan, 1977), **how do actors select material resources at hand for the purpose of intertwining the “old” and the “new”? And how can the selection of these elements through Bricolage maintain an institution?**

While I discredited my previous hypothesis that the actors might decouple sustainable development concerns or solutions and heritage respect in case of construction works to faint an isomorphic form to gain legitimacy in the whole field (Boxenbaum & Jonsson, 2008), my findings suggest that they succeed in implementing such a mixing.

By using Bricolage, the actors, from the short-lived organization that handles the construction work, have at “hand” the material artefacts coming directly from the existing listed-building and from the new materials or technical solutions architects habitually use in new buildings

and have in their individual stock with which they dialogue. But besides these resources that will be materially used and arranged, another level of resources exists. This second level is linked to the repertoire and the organization of the different stakeholders who take part in the construction works and these resources represent the borders in which the actors must interact. They are basically their individual cognition, their economic resources, their network in a broad sense – professional and political – and the time. Finally, through the compromises performed by the actors between the four previous resources, i.e. the action of the bricoleur, I highlight how the bricoleur maintains the Institution of the Listed-Buildings while modernizing it by balancing two antagonist kinds of institutional works: one work that create and another that maintain an Institution.

Literature Review: Institutional Maintenance Work and Bricolage

Institutional Maintenance Work

By integrating agency into the institutions, the Institutional Work stream broke the static vision of the institution and highlighted to what extent they are the results of human actions that try to reproduce, destroy or alter them (Jepperson, 1991), i.e. how actors can create, maintain or disrupt institutions (Lawrence & Suddaby, 2006). *De facto*, this recent research program gives “*an increasingly well-developed framework for studying various forms of institutional change, and particularly in understanding the role of actors in these processes*” (Gawer & Philipps, 2013: 1039). On the contrary of the work of “creating”, with its substantial number of typologies¹, and the work of “disrupting”, based around the work on Oliver around the deinstitutionalisation phenomenon (1992), which both experienced a lot of attention from the scholars, the work category of “maintaining” was for a long time overlooked in the literature.

Regarding the latter, current studies argue that this type of work lies on a paradox that seems interesting to focus on in order to understand how an institution can be maintained through its tangible change or modernization. Indeed, the works of Raviola and Norbäck in a Business

¹ There are nowadays nine different forms of Institutional Creation Work analysed in the literature from Advocacy (Elsbach and Sutton, 1992) to Educating (Lounsbury, 2001). Cf. Table 1.6.1 in Lawrence & Suddaby (2006) in order to get the exhaustive list.

Newspaper (2013) and Currie et al. in the healthcare sector (2013) reveal a complex dynamic involving change and maintenance of institutions and underline how the “creation” and the “maintenance” types of work interact and how these forms cross categories.

To study this paradox, I chose the stream of the Scandinavian Institutionalism that refers to the micro-processes stemming from the emergence of new institutional pressures and to the understanding on how organizations perceive and interpret these pressures and how these practices affect the studied entity (Czarniawska & Sevón, 1996). In general, in that approach which focuses more on the agency questions, an idea or a pressure is translated on a micro-level in different ways depending on the organizations and the actors who choose what to implement or not. Regarding the whole organization’s proper resources, i.e. its history, knowledge, network, etc., which are different in each organization within the field, the organization interprets new practices or pressures in a unique way in order to better respond to its interest and reinforce its activity.

Moreover, while some studies analysed that institutional work operates as a reallocation of institutional resources (Leca & Naccache, 2006), which can be represented by material objects (Dover & Lawrence, 2010), materiality becomes a central dimension of institutional work. For instance, Gawer and Philipps (2013) and Raviola and Norbäck (2013) demonstrate *“how actors engaged into institutional work can use artefacts that instantiate established institutions to facilitate the transition between past habits and the elaboration of new habits for the future”* (Lawrence, Leca & Zilber, 2013: 1028).

Hence both the translation concept and the materiality concern make relevant Lévi-Strauss’ (1962) notion of bricolage.

Bricolage

Developed in 1962 by Claude Lévi-Strauss, bricolage is defined by the simple paradigm that the actor always and only uses what is “at hand” whatever the task she has to perform. *De facto*, this approach is opposed to the engineer’s who will acquire the necessary tools or resources for his project. With the elements she has in her repertoire, the actor practicing bricolage continuously interacts with them in order to make an inventory of the

possible solutions they give access to. In summary, four major characteristics of bricolage emerge from the text of Lévi-Strauss:

- 1) do with what is at hand, i.e. in stock (Duymedjian & Rüling, 2010),
- 2) to recombine objects which can be resources, structures (Ciborra, 1996), myths, technologies or knowledge (Garud & Karnøe, 2003),
- 3) objects which retain their own uses and identities in case of dispersion (Chao, 1999) and
- 4) give rise to new and previously unknown propositions (Lanzara, 1999) with new features whose number is limited (Rao, Monin & Durand, 2005).

The bricolage can be seen as a way actors apply combinations and arrangements to new problems and opportunities (Baker & Nelson, 2005) in order to achieve a specific goal (Højgaard Christiansen & Lounsbury, 2013). It is linked to a “trial-error” test (Duymedjian & Rüling, 2010) where the bricoleur submits and calls into questions her proposal if the resources she has to manage and intertwine are implemented in an inappropriate manner. As a consequence, this approach can reject an improvisation scheme underlined by Baker and al. (2003): the conception and the realization of the action being two distinctive steps.

During a destabilizing situation, bricolage encourages the ability of adaptability and approaches the resilience that allows an organization or its members to overcome a crisis by maintaining both consistency of identity and the capacity to act (Weick, 1998). Also the bricoleur remains more creative under pressure and she can recombine existing resources for new purposes in order to answer environmental changes, thanks to an unusual use of those resources. Using bricolage as a mechanism of legitimation (Desa, 2012), the actors assert their will to challenge the institutional constraints (Cartel, 2013).

If the bricolage concept is experiencing an increasing interest from scholars that try to define all its main features, there are still very few papers that explain how bricolage is implemented and functions and what its underlying mechanisms are (Duymedjian & Rüling, 2010; Boxenbaum & Rouleau, 2011). And how the actors are able to use and arrange all the resources they have at hand and how they can start initiate such a selection, such a dialogue between them which “*starts from the moment the bricoleur is confronted with an objective or a practical function to be fulfilled*” (cf. *ibid*, 2010).

Research Design

Empirical Context and Case Study

Because of the worldwide recognition of its architecture and its environmental awareness, I opted for buildings in Denmark. Following the Danish Act on Listed Buildings and Preservation of Buildings and Urban Environments (2011), a listed-building is a building with architectonic or historical qualities highlighting some national meaning. Both old and modern buildings can be listed and there are currently 9000 listed-buildings in Denmark from small pavilions, industrial facilities to castles. The preservation applies to the whole building and it is the Agency of Culture that manages it and approves alterations. The building is under the responsibility of the State and it is always either a Ministry or a municipality which asked, as a client, for renovation or extension. Twenty years ago, the listed-buildings were not affected by the questions of ecology. Indeed it was unconceivable to add material that impair their aesthetics side, but the appearance of new sustainable development ideas set up a new deal and led to new institutional pressures (DiMaggio & Powell, 1983).

While the architects still do not legally have to respect the green policy but only what is indicated in the general Danish building regulations, the BR10, it is their appreciation that determines whether or not they should take it into account. And because some voluntary measures are expected to take effect as mandatory in a closed future and also as the interest in green building from the clients and patrons² keeps growing, all listed-buildings which undergo construction works are nowadays upgraded according to green ideas. Sustainability has to be understood here in terms of efficient energy consumption and building survival over time while providing a decent life quality and comfort to the users.

Under several selection criteria, a preliminary step was to choose the sample of the buildings I should focus on. First, the building had to be a listed-building regarding the legislation and still used with the same function it was built for. Then it must have undergone renovation and/or extension and some new or sustainable materials had to be integrated into the building

² For instance, the Realdania foundation, which is one of the most known patron in Denmark, has just released a guideline book « Realdania 2050 » highlighting what Denmark should be at that time and underlining the need of Sustainable Development in the construction field.

during these construction works. Finally, the access to the field, and to the actors present during the project, should be relatively easy; it is the reason why buildings belonging to the Danish Royal Family or private owners were discarded. According to these requirements, I decided to study three listed-buildings located in Copenhagen; the first one has been chosen as a paradigmatic and critical case, the two others as maximum variation cases (Flyvbjerg, 2006):

- the Nyboder neighbourhood: built by King Christian IV in 1631 and undergoing renovation since 2011 to allow students of the Danish army to keep living there. These famous yellow houses are the most typical residential area of Denmark,
- the Sølvgade school: the renovation of the Denmark's oldest primary school built in 1847 ended in 2012. The main objective of the works was to create a new extension for extracurricular activities in order to answer new teaching demands.
- and the Munkegård school: this famous Arne Jacobsen building built between 1954 and 1956 was renovated in 2005. While dealing with the signs of wear, the architects had to renovate it and to think about a new extension, according to the Jacobsen's old detailed drawings to bring back some missing details.

Data Collection

Following a Grounded-Theory Methodology (Glaser & Strauss, 1967) and through these three cases I collected archival data, such as regulations texts (BR10), call for bids, architects drawings and historical or guideline documents on the studied buildings or on the field (Realdania 2050). Yet I conducted ten interviews with the main actors involved in these building works, i.e. with the architects and the closed stakeholders such as the clients, a patron, representative in the Agency of Culture or some building or heritage experts; the interviews remaining my major source of information. The interest lies here to view the focal phenomenon from various actors and their perspectives (Eisenhardt & Graebner, 2007). I explained to them that I study the introduction of new materials into listed-buildings and how they can integrate such material without distorting the building heritage. In addition to detailing the context of the works and the histories of both the buildings and the companies that took care of the works, the interviews focused on three major themes:

- a first one on the listed-building renovation in general and, for instance, how the actors decide what to maintain and what to change or how they imagine the new building life,

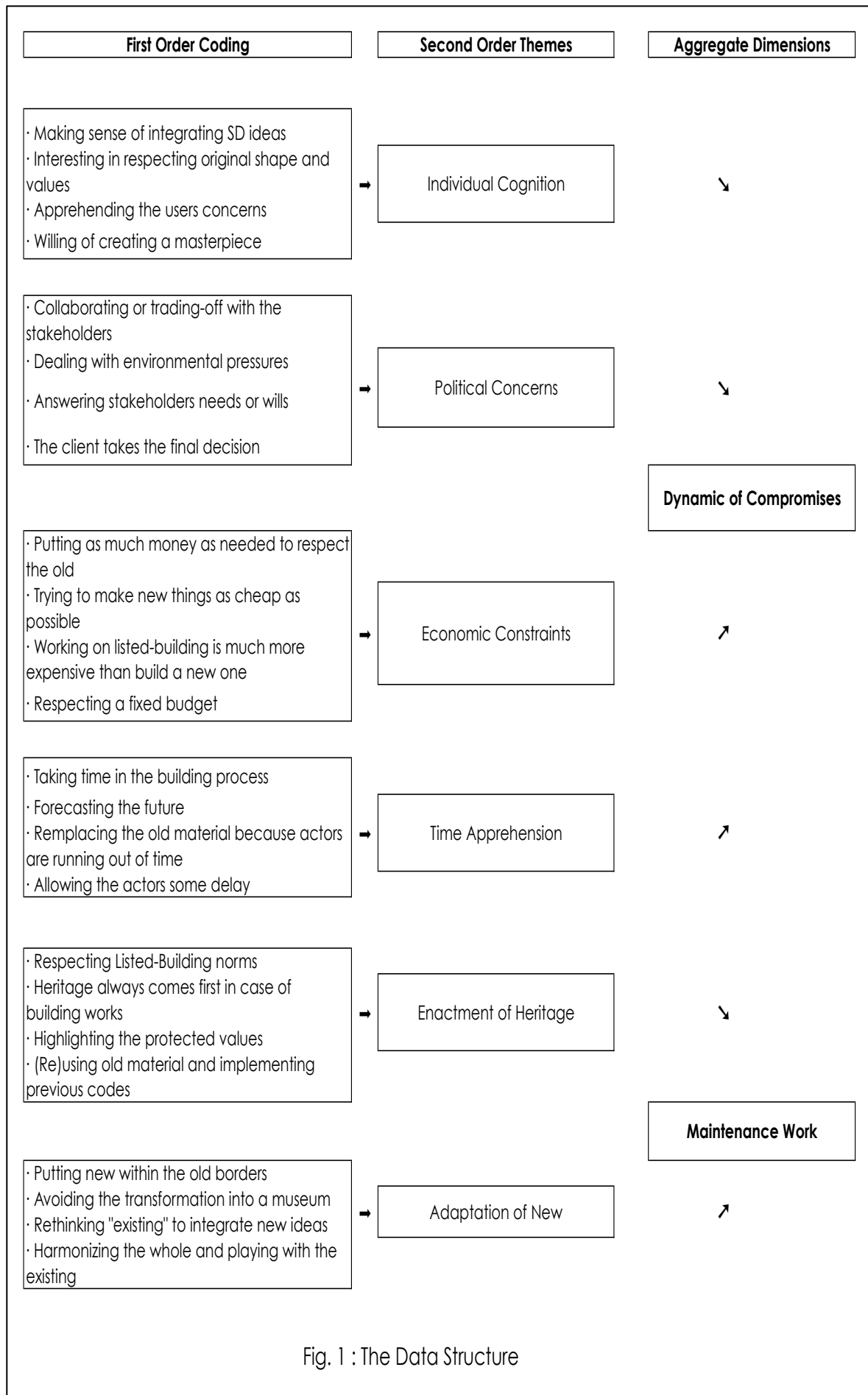
- a second theme on how the organization deals with these kinds of works and on the analyse of the agency or the role of the economics, *etc.*,
- and a last one on the integration of new materials and Sustainable Development concerns.

They lasted about one hour and a half and were conducted in the actors' working places or directly on the building sites. They were all recorded and transcribed. The interviews were semi-structured in order to generate new knowledge and to simulate interviewees' thoughts on the shortlisted themes (Justesen & Mik-Meyer, 2012).

Furthermore, regarding the data collection, if I could not observe the action of renovation at the given moment - some of them ended at least three years ago -, I could see with the architects *ex post* all the arrangements they made when during the meeting they showed and explained to me what they have done to the building and how they did it.

Data Analysis

To discover and analyse how the organization and the architects intertwined the old and the new, and more specifically what the micro-dynamics of a such bricolage were, I am using a Grounded-Theory Methodology (Charmaz, 2006); which is one of the most suitable methods to generate substantives theories out of data in organization studies (Locke, 2001) and to understand the process by which actors construct meaning from their intersubjective experience (Suddaby, 2006). I entered the field familiar with the literature pertaining to the subject and related ideas (Glaser, 1978), and started iteration between the emerging theory and the field through open coding. After this first step of open coding, where I identified such codes as "maintaining protected values through material artefacts", "respecting program", or "trying to do as cheap as possible", I used axial coding to obtain themes in order to give coherence to the emerging analyses (Strauss & Corbin, 1998); for instance themes that emerged are "enactment of heritage" or "political concerns regarding the project". I practised iteration between data and literature all along the process. Moreover, memo writing helped me advance my analytical progression by a constant comparison between the different studies of listed-building (Charmaz, 2006). My data structure is represented in Figure 1.



Regarding the developments of the study and because of the Grounded-Theory approach, and the search for theoretical saturation, the aim of the paper being theory building (Eisenhardt, 1989), the data collection and the in-depth analysis are still on-going and more interviews have been planned in France with new selected cases. Therefore, the results presented here are still incomplete and may evolve in the future.

Current Findings³

The building work process:

From the collected data, I set up the value chain of listed building works. The whole process was divided in three different steps before the final building delivery: the pre-project, the project and the construction phase. In my cases, even if the building works were renovation, extension or both at the same time, the value chain remained the same.

The pre-project: The pre-project was always initiated by the client, who was in my study always an architect coming from the public sector: either a municipality – Copenhagen or Gentofte – or the Ministry of Defence. This first phase was divided in three different steps:

- the creation of a contextual analysis where the client defined and listed his needs and more specifically what function he wanted to preserve : e.g. Nyboder had to remain a house estate for the Defence students,
- the elaboration of a first building specifications where the client explained and described what kinds of works the future architects had to implement in order to respect the client's will and so get the contract,
- the choice of an architecture agency, which was chosen based on the building specifications. This selection was made either following a call for bids or by a question of affinities between the client and the architects; e.g. the agency for the Munkegård Skole had been chosen because the municipality knew by experience that these architects were more efficient than others in terms of listed-building works.

³ The findings are currently divided in two distinct sections that remain partial and need more in-depth analysis.

The project: After having established an architect team, where some engineers were also associated with through the architecture agency, both the client and the architects⁴ started drawing sketches and at the same time analysed the values they needed to preserve because of the listed building protection. The whole team created a first proposal that served to shape the entire project but also to submit it to the Agency of Culture, and more specifically to the Board of Cultural Heritage (BCH), that gave or gave not its approval to the project and to patrons or governmental entities that financed or not the building works. If the BCH and at minimum one patron approved the works and paid for them, the construction began. All along the building works, the BCH and the patron became important and integrated stakeholders who submitted their opinions and advises. If the client made the final call, this final decision resulted from a lot of compromises and that optimum process never happened in the concrete field. Indeed, between the steps of “project” and “construction”, a lot of talks and negotiations emerged on what materials the actors were going to use and why; talks that could continue even during the step of construction.

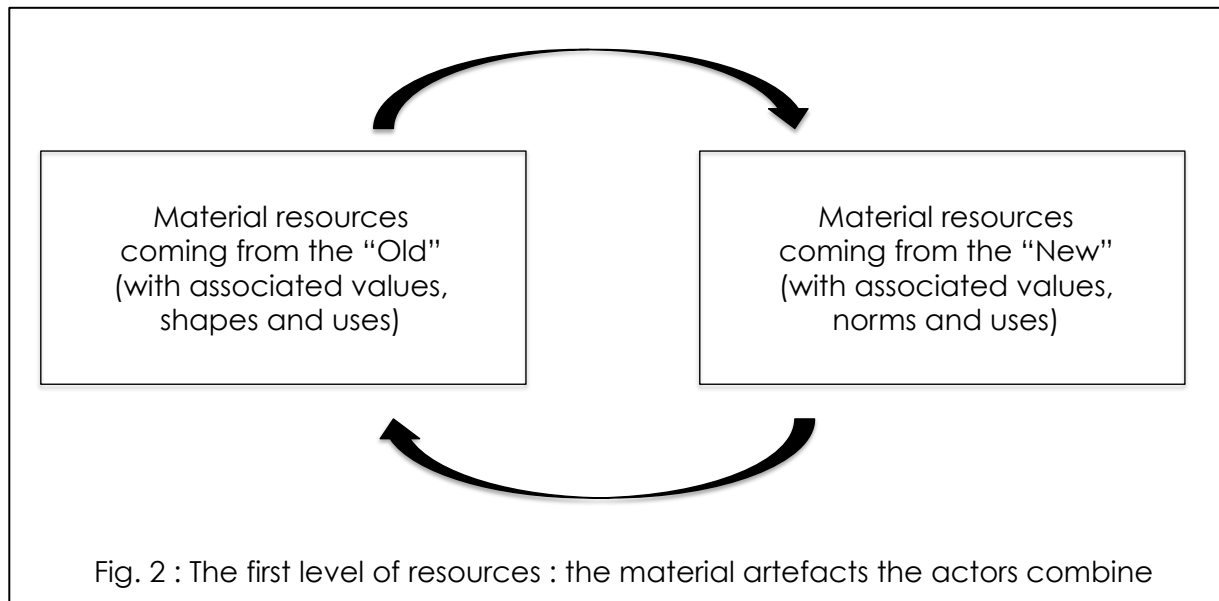
Bricolage as a dynamic of compromises:

Regarding my research question, I analyse here how these actors selected the resources they used and implemented in order to respect all their different requests: the client demanded modernity and comfort, the BCH and sometimes the patron needed the more extreme respect of the Heritage value of the building, the architects wanted to respect all the various wishes while creating at the same time their own masterpiece. If the two first steps seemed like structured processes, the choice of the materials to practice building works while respecting the stakeholders wills became a more dynamic step.

In order to simultaneously respect the listed building protection and answer the pressures of sustainability or modernity coming from the environment, the architects had to choice between two types of material resources they had in their portfolio. There were the material resources coming from the “old”, e.g. the existing materials and shapes, and the material resources coming from the “new”, e.g. new materials architects get used to work with. But it

⁴ For the sake of simplification and even though the client, or later the patron, are represented by architects, I will continue to speak of « client » or « patron » in order not to create a misunderstanding with the architects of the chosen agency.

appeared in the field that the selection of these resources and how they were intertwined each other depended on a second level of resources emerging directly from the stakeholders. There were *de facto* two levels of resources at hand: one level that included the materials artefacts the actors needed to materially combine (cf. Fig.2) and another level that allowed actors to select the resources they used. It was on that second level that the actors made some compromises.



What seemed to be a structured process with iteration between the architects and the stakeholders was actually a dynamic field of negotiations and compromises where the actors, in order to select the material artefacts, used resources they had in their repertoire, with which they dialogued and dealt with. Even though their importance was different between the three studied cases, four different resources emerged in each of them, there were: the individual cognition, the political concerns, the economics constraints and the time apprehension. It is important to precise here that, at the time of writing, I don't know yet how these resources are interrelated but I assume individual cognition is linking with political concerns and money with time.

The individual cognition: Regarding their own repertoire and past experiences, all the actors had different self-interests and know-how when practising these kinds of works. These different motivations led to actions that might be contradictory or additional regarding the initial competition call for bids and what they wanted to implement. As I heard a lot during

my interviews *“Heritage always comes first”*, and some actors paid particular attention to how the “old”, with the shape and values, was respected: *“we [the architects] have to keep the building like it was”*. But on the contrary, some individuals insisted on how integrating sustainable development ideas, i.e. materials or technics, into old buildings *“is making sense”*. And some of them did not hesitate to apply to some green label or certification as ISO 14001 even though it was not a pre-requisite in the application. As the architect of the Sølvgade Skole told me *“because we [she and her team] believe in saving CO2 emission, we wanted to push these green developments and doing it over standard on purpose”*. Furthermore, actors had also different feelings about what they thought the future users would expect and did not hesitate to getting far away from what have been validated in the beginning of the project *“to make [the building] as attractive as modern as possible without putting the values in hazard”* or to create their own vision and masterpiece of what the “old” should be nowadays.

The political concerns: Each building project created a short-lived organization where decisions and compromises were made between each group of actors. Because they had self-interests that might be contradictory, each of them had to take into account the wishes of each other but sometimes some of them were not wishes but lines architects had to toe, especially when the wills came from the actor who paid for the project. Or when the building benefited from a high sympathy from the citizens. In the wish of more “comfort”, even though the BCH told me that *“some new materials put in some rooms are too luxurious regarding what the building represent and what kind of people [students] live here”*, the architects moved aside the Heritage side. Why? Because the influences of the client and the patron who had interests in such solution were stronger and the Heritage side could have been minimized despite the displeasure of the BCH. Such political concerns were also physically represented: e.g. in Nyboder, actors tried two different solutions of ventilation, as a trial-error test, in order to decide at the end of the project which one will be the best to redo – one was more heritage friendly, the other more “low-energy” consumption friendly –.

The economics constraints: *“All is about money”* was also a recurrent quote during the interviews because construction works on listed buildings are the more expansive works in this field. As one client explained to me *“the total amount is maybe three times as it would cost to another building or modern house in the same size”*. Moreover, it was not rare that the overall budget skyrocketed regarding what has been planned in the beginning. But again

discourses were often divergent regarding the actors' interests. On one hand, patron gave as much money as possible to respect the heritage of a building because *"you can't redo a wall 20% cheaper"*. On the other hand, the client urged the architects to respect the allowed budget by doing the *"most important first and try to do cheaper on things [...] that have no long lifespan"*. Economical paradoxical situations existed and client and patron also gave extra money to the architects to let them buy new materials which respected less the Heritage side that it helped the architect desire: e.g. the entire colour scheme of one of the school where the architect enjoyed working with the colours but did not know if she *"can capitalize and say how much money was spent on doing it"*.

The time apprehension: This factor is yet the less analysed in my data but what led me to interest to that point was for, in one of my case, the client made a decision because he *"was running out of time and needs to keep moving"*. So he decided to put a building material – a window – that did not respect the heritage values but also had no specific sustainable features. Besides, some of its aspects was not as aesthetics as expected. Going back to my data, I found another antagonist treatment of time in one of my other case where the actors did not care of having some delay in the building delivery: e.g. the pilot project of the student campus of Nyboder was delayed by about 6 months. For certain architects, *"time is all the time in the world"*. Finally, the time apprehension could also be seen in the way the actors forecast the future of the materials and to what extent the chosen material was relevant to answer some issues related to the function for instance.

To sum up, the compromises around these four resources were all around the cases but were treated differently depending each project and actor. In all the cases I studied, these resources at hand were interrelated and it was according to them that, at the end, the actors made or facilitated the decision on which materials they had to use.

Bricolage as an Institutional Maintenance Work:

A last part of the analysis focuses on how the actors used bricolage, and so made trade-offs, to manage the balance between the "old" and the "new", i.e. between the "heritage" and the "modernity", and to model the micro-mechanisms of institutional maintenance thanks to the resources the actors used and mixed, be they physical artefacts or

their associated values and rules. Here I analyse how this concrete action of compromise leads to the Institutional Maintenance.

As I just analysed in the previous part, all the stakeholders compromised to carry on what characterizes their works on listed-buildings while meeting new institutional requirements to reach green legitimacy. In the field, the findings suggested that bricolage appeared as the result of an internal dynamic between two apparently conflicting forms of actions: the action that triggered the respect of the listed-building and the action that tried to bypass it. Indeed the choice of the materials led to two different ways of implementing the mixing. On one hand, the architect was looking for the respect of the building mythology, i.e. its original use, function or value: *the enactment of heritage*. On the other hand, she practiced mimicry by integrating new elements drawing on the old ones without breaking the new features allowed by the new materials: *the adaptation of new*. The bricoleur used new materials with their own features while keeping the essence or the shape of elder ones. But again, as I wrote earlier, if the new building was not fitting with the “listed-building” criterion, even despite its modernization, it would not be listed anymore; imposing on the actors a limited scope of action.

Enactment of Heritage: First of all, the stakeholders listed the values they definitively had to preserve and to highlight despite the works in order to understand the place, participate creatively and contribute to its history following a Genius Loci approach⁵. Five fundamental categories of value were concerned as an architect explained to me: “*before I start the works, I need to think about the holistic, the architectural, the utility, the physical and the perceptual values*”. And it was with the help of building materials that the actors respected them; even though they have prioritized them differently regarding their specific project.

During a renovation/extension work, the architects respected the different values stored in a physical manner. And the examples that underlined the wishes of the organization to keep the heritage as much as possible were numerous. First and if it was possible, the actors re-used the previous materials if they were in a good condition, e.g. an old outer window was systematically re-used in order to maintain the building rhythm (but also for economics reason). And then, on the contrary, if a material could not be re-used, it was replaced exactly

⁵ For more information, cf. Norberg-Schulz C. (1980), *Genius Loci, Towards a Phenomenology of Architecture*, Rizzoli International Publications, 216 pages.

in the same old way it was arranged; e.g. the architects tried to replace old brick with brick that was designed and produced in the exact same manner than before. Even though it could be extremely expensive, paradoxically, old materials are often *“more sustainable than new ones”* in the long run.

Regarding the legislation, as an architect in charge of Heritage from the BCH told me: *“if the new building does not fit with the listed-building standards, it will no longer be listed”*. That is why *“Heritage always comes first”* in case of building works and why the main priority of the architects was to maintain the legitimacy of the listed building within that institution and so to respect the rules defined by the Danish Act on Listed Buildings and Preservation of Buildings and Urban Environments (2011)⁶. This stranglehold of the Heritage was even stronger because the architects were more or less obliged to follow the new Building Regulations (the Danish BR10) and they could adapt it regarding what they needed and what they wanted to preserve⁷. As an architect explained to me: *“we [the architects] are completely free and the only aspect we should take into consideration ... actually we have to follow the normal regulation for building of Denmark; but you could get dispensations for everything except for fire”*.

Adaptation of New: On the balance of respect the Heritage values, the architects had to translate and to interpret new sustainable ideas within the “old”; again they played with materials to achieve that aim. In practice, according to the protection Act, *“changing the originals”* tended to be impossible which made the case study more interesting. Especially because the integration of “new” was made in order to avoid the transformation of the building *“into a museum”*. The architects integrated generally new materials if it helped the function the client wanted to preserve, e.g. in the Munkegård Skole, the BCH authorized the use of automatic open-windows because, in case of over-heating issue, it helps to refresh the classroom where the children study.

But the implementation of new materials may be subtler while respecting entirely the Heritage respect and the prescribed borders. In order to do that, the stakeholders played with the new materials with a lot of creativity.

⁶ In this act, one of the major rules is that *“all building works, which affect a listed building, require a permit from the Minister for Culture”*; a listed building owner cannot do what he wants with its and has to respect the protected values.

⁷ Actually the architects can overstep current regulations if the Heritage respect needs it.

First they re-employed the building environment in order to legitimate the new integration, or extension as I observed in the Sølvgade Skole. There, the architects integrated sustainable features in the new building by giving to the new materials they used, the form or the colours of the neighbouring buildings. By “*paying respect to the shape of the gable*”, the architects created a functionalist façade where they integrated sustainable solutions to regulate energy consumption while staining it with colours of others existing buildings. These architects compared their works with the “*acupuncturist*” one, picking up details all around the listed-building and mix all of them to make everything homogenous.

Besides, they practiced mimicry with existing building elements to integrate new ideas. In the case of the Munkegård Skole, the former classroom courtyards have been reproduced with new materials during the underground extension of the historical school and now serve as a skylight. The architects also reprogrammed rooms or spaces, without physically transforming it, by giving a new function that helps the evolution of the habits. Still in the Munkegård, the old hall was converted into a library where the architects designed furniture with new materials preserving the spirit of Arne Jacobsen (they used the same colours and specific design).

Finally they took advantage of the former construction to hide new sustainable materials and solutions. In Nyboder for instance, the stakeholders tested a way to integrate sustainable solutions inside the house, i.e. by respecting the aesthetics side. They tested and developed a rainwater harvesting system for non-drinking water purposes – for the washing machines – they hide in the gutters or as I wrote earlier, they set the both new ventilation systems under the roof or inside the foundation.

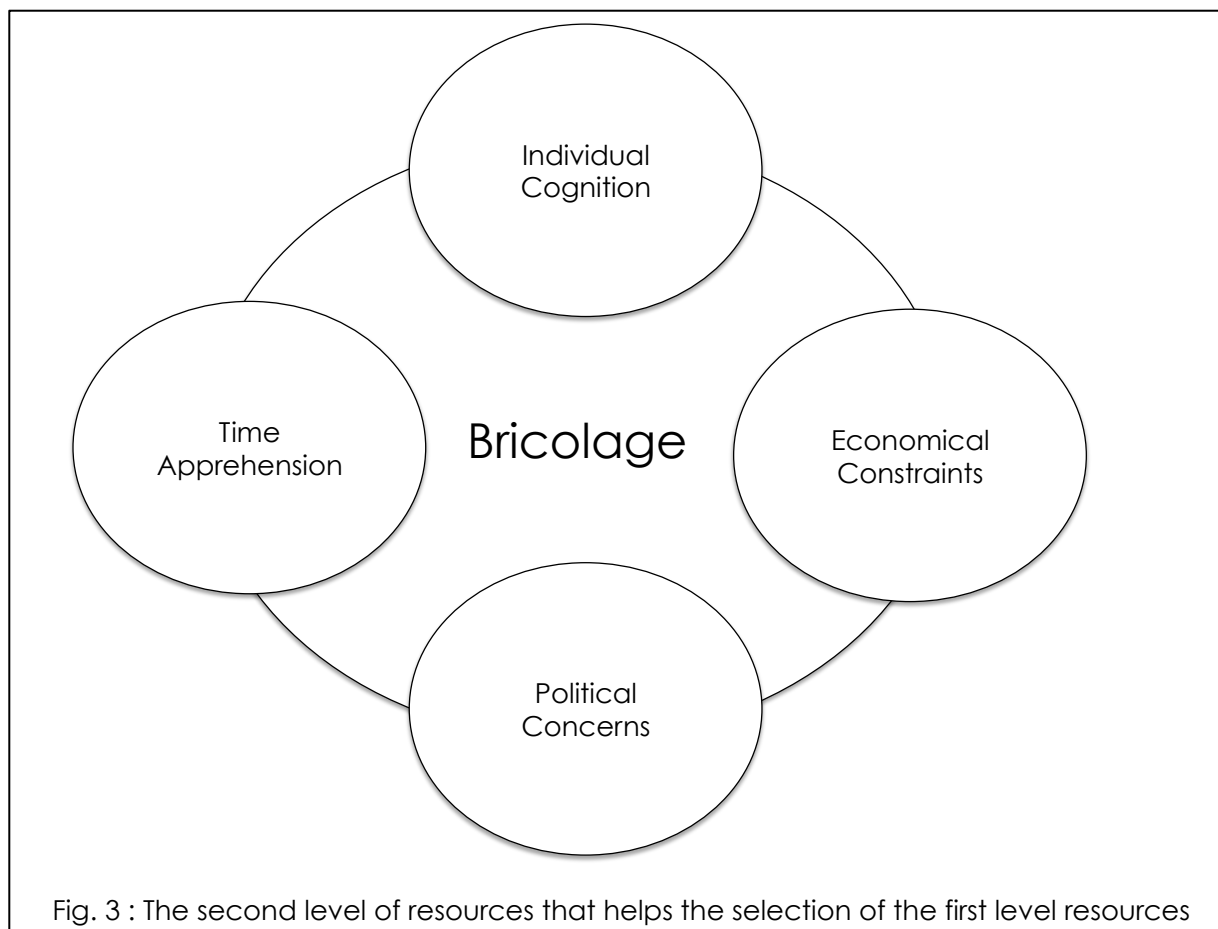
By doing so, the architects maintained the identity of the building while modifying it. They recorded the building in the current era while respecting the features for which the building was listed. And by extension, the actors maintained the legitimacy of the listed-building institution.

Partial Discussion and Conclusion

In this paper, I analysed the Bricolage concept and how it can be used as an Institutional Maintenance Work. To do so and regarding the void in the literature (Duymedjian & Rüling, 2010; Boxenbaum & Rouleau, 2011), I explored the micro-mechanisms of Bricolage and

bring an original scope on its concept that can be interpreted as a model to understand decision-making after the dialogue undertaken by the actors with their repertoire. Indeed, even though the client had almost every time the last word, the compromises, between all the repertoires and so the resources from the stakeholders such as the heritage expert or the patron, led to new propositions, and *de facto* new choices (Kreiner, 2012).

So far, my main contribution to the institutional literature is to see Bricolage as a *dynamic of comprises* based on two levels of resources “at hand”; those the actors have to make a choice between and those which can help the actors selecting the resources they need to use. In my case, the (physical) materials resources were selected regarding four resources at hand the actors needed to deal with, whose compromises were every time different regarding what the actors tried to achieve regarding their project: there were economic constraints, political concerns, individual cognition and time apprehension (Fig. 3). Therefore, the number of possible solutions was limited and these solutions would never be optimal because of the on-going compromises the actors should make regarding these previous resources.



Then a second contribution is related to the role played by the bricoleur, which was in my study the short-lived organization, to maintain an institution despite its modernization. I analysed that the work of Bricolage appeared as a balance between two different institutional works following the Lawrence & Suddaby typology (2006): one to create an institution through mimicry (Hargadon & Douglas, 2001), the other to maintain it and respect all its myths (Angus, 1983). With the interaction the actors had with the materials they intertwined, I confirm that institutional maintenance can come through an important work on the symbolic institutional artefacts, both being associated with two contradictory ideas actors needed to intertwine while prioritizing one above the another. Indeed, not respecting the main purpose, in my case the Heritage respect, will supposedly lead to the creation or the destruction of the institution the actors try to maintain.

Next to these contributions of presenting the micro-dynamics of Bricolage, there are several research perspectives. By looking for a formal theorization through the Grounded-Theory Methodology for that dynamic of compromises, a subsequent paper will set a comparison with other case-studies outside the listed-buildings institutional field. I have already some tracks to focus on like the Music Record Industry with the maintenance of the vinyl audio support despite the emergence of the digital MP3, the Museum sector with the eruption of new interpretative mediation tools for visitors or the horology and the integration of modern features. Still on the Bricolage, it would be interesting to explore the link between the Bricolage and the Insight from the psycho-cognitive literature and more specifically from the Gestalt Theory (Köhler, 1929), which focuses on the gradual trial-error dynamic to solve a problem. The leitmotiv of this literature *“the overall shape overhangs the details”* can also interest me to understand the symbolism of the materials and why, even if the architects change minute details by adding sustainable development ideas, only the whole architecture and the heritage associated values matter in terms of perception and experience.

Another perspective would be to follow the works of Jones et al. (2012) and Friedland (2013) and introduce how a building artefact, as the wood or a specific colour, could represent one or several Institutional Logics through its associated values and how the use and the implementation of new materials, pertaining here to more sustainability, could co-exist with the materials already used in the listed-building. Moreover, a second step would be to analyse

that mixing physical materials could intertwine their associated logics; the logics can be combined through Bricolage (Højgaard Christiansen, 2013). Therefore, a final one would be to focus on the links between Institutional Logics and Institutional Work (Zilber, 2013).

I underwent some difficulties and limits writing this paper. The first one has been to get in touch with some actors of the project who never answered to my request of interviews: for instance, both the headmasters of the Sølvgade and the Munkegård schools. Besides, some misunderstandings may be present in the current document because of the Danish language and the approximate translation; along that vein, some Danish documents haven't been used like some Defence archives because of the time-consuming operation. Meanwhile, some of them will be translated to improve data analysis.

To conclude, the integration of Sustainable Development and the need to comply with its ideas have become essential in the whole society. In the studied case, survival of both architecture organizations and listed-buildings on which they worked depends on the reach of this green legitimacy despite the maintenance of what characterizes them in the first place, i.e. the heritage values. Regarding the research question on how organizations are able to mix the “new” with the “old”, I bring an original answer with the help of the Bricolage concept. Concept used as a tool for an organization to rethink its decision-making model when external pressures or requirements have to be integrated. Using bricolage allows apprehension of a new kind of organization evolution through its associated internal dynamics and core features. Besides, by seeing the architects' actions on buildings, the paper raises the questions of whether the architects have always been conscious of the welfare of the users and whether the organizations' usual practices already implemented sustainable development ideas without naming it. Then, thanks to the case study, the paper also address a needed empirical evidence of adaptation with an intra-organizational scope and an understanding of how these micro-actions may influence the institutional field.

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